

## CHEMISTRY

### NTA MOCK TESTS ENGLISH

### NTA JEE MOCK TEST 61

#### Chemistry

1. At 277 K, degree of dissociation water is  $1 \times 10^{-7} \%$ . The value of ionic product of water is

A.  $3.0 \times 10^{-14}$

B.  $3.085 \times 10^{-15}$

C.  $1 \times 10^{-16}$

D.  $1 \times 10^{-14}$

**Answer: B**



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2. Select the correct options for the following statements.

1.  $Cl_2O$  and  $ClO_2$  are used as bleaching agents.
2.  $OCl^-$  salts are used as detergent. .
3.  $OCl^-$  disproportionates in alkaline medium.
4.  $BrO_3^-$  is oxidized in acidic medium.

A. 1, 2, 3 correct

B. 2, 3, 4 correct

C. 1, 2, 4 correct

D. 1, 3, 4 correct

**Answer: A**



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3. Which of the following treatment will convert amylose directly into glucose?

A. Heating with dilute  $H_2SO_4$

B. Fermentation by diastase

C. Fermentation by zymes

D. Heating with dilute  $NaOH$

**Answer: A**



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4. The molar heat capacity of water at constant pressure,  $C_p$  is  $75 \text{ J K}^{-1}\text{mol}^{-1}$ . When 10 kJ of heat is supplied to 1 kg water which is free to expand, the increase in temperature of water is

A. 2.4 K

B. 4.8 K

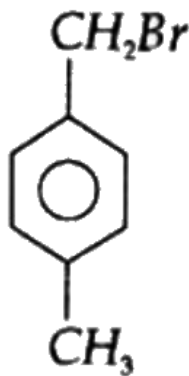
C. 3.3 K

D. 7.2 K

**Answer: A**

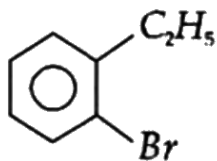
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5. Compound (A)  $C_8H_9Br$ . Gives a white precipitate when warmed with alcoholic  $AgNO_3$ . Oxidation of (A) gives an acid (B).  $C_8H_6O_4$ . (B) easily forms anhydride on heating. Identify the compound (A)

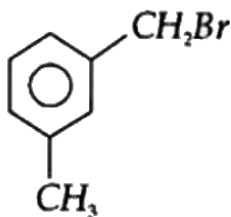


A.

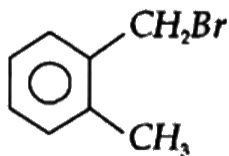
B.



C.



D.



**Answer: D**



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6. Four successive members of the first row transition elements are listed below with their atomic number. Which one of them is expected to have the highest third ionisation enthalpy ?

A.  $Fe(Z = 26)$

B.  $Mn(Z = 25)$

C.  $Cr(Z = 24)$

D.  $Co(Z = 27)$

**Answer: D**



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7. Stability of the species  $Li_2$ ,  $Li_2^-$  and  $Li_2^+$  increases in the order of

A.  $Li_2^- < Li_2 < Li_2^+$

B.  $Li_2^- < Li_2^+ < Li_2$

C.  $Li_2 < Li_2^- < Li_2^+$

D.  $Li_2 < Li_2^+ < Li_2^-$

**Answer: B**



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8. Crystal field stabilization energy for high spin  $d^4$  octahedral complex is \_\_\_\_\_

A.  $-0.6\Delta_0$

B.  $-1.8\Delta_0$

C.  $-1.6\Delta_0 + p$

D.  $-1.2\Delta_0$

**Answer: A**

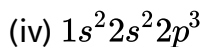
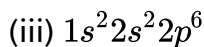


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9. The electronic configuration of few elements is given below. Mark the statement which is not correct about these elements.

(i)  $1s^2 2s^2 2p^6 3s^1$

(ii)  $1s^2 2s^2 2p^5$



- A. (i) is an alkali metal
- B. (iii) is a noble metal
- C. (i) and (ii) form ionic compound
- D. (iv) has high ionisation enthalpy than accepted

**Answer: B**



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**10.** Lithium is the strongest reducing agent though it has highest ionisation energy in its group. Which of the following factors is responsible for making Li the strongest reducing agent?

- A. Large heat of atomisation
- B. Smaller size



C. Large sublimation energy

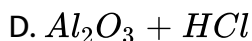
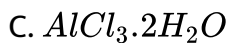
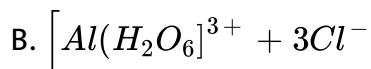
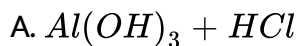
D. Large amount of hydration enthalpy

**Answer: D**



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11.  $AlCl_3$  achieves stability by forming a dimer. In trivalent state the compound is hydrolysed in water.  $AlCl_3$  in acidified aqueous solution forms

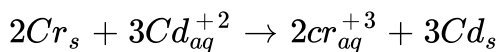


**Answer: B**



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12. Calculate the standard cell potential of galvanic cell in which the following reaction takes place



Given  $E_{Cr^{+3}/Cr} = -0.74(V)$   $E^\circ - (Cd^{+2}/Cd) = -0.04(V)$

A. 0.74V

B. 1.14V

C. 0.34V

D. 0.34V

Answer: C



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13. Which of the following is the wrong statement?

A.  $ONCl$  and  $ONO^-$  are not isoelectronic

B.  $O_3$  molecule is bent

C. Ozone is violet - black in solid state

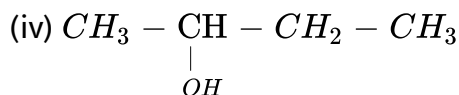
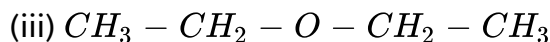
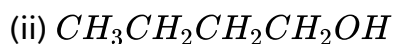
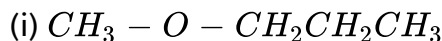
D. Ozone is paramagnetic gas

**Answer: D**



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**14.** Given below are the structure of few compounds with molecular formula  $C_4H_{10}O$ . Select metamers from these structure.



A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

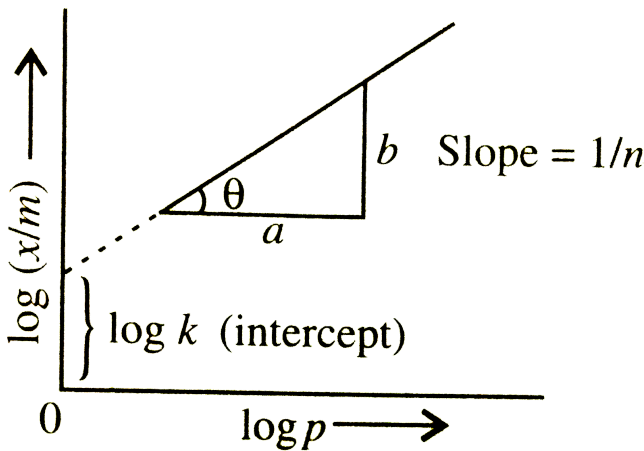
D. (ii) and (iv)

Answer: C



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15. A graph is plotted between  $\log (x/m)$  and  $\log p$  according to the equation  $\frac{x}{m} = kp^{1/n}$



Which is the following statements about his graph is not correct ?

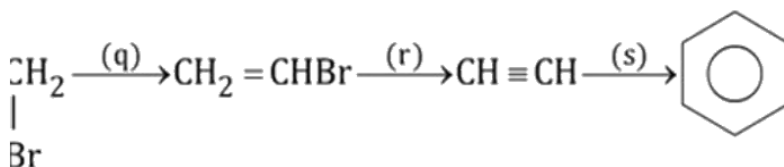
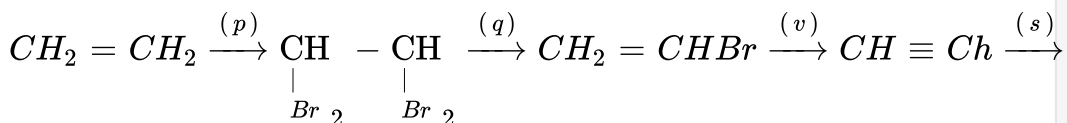
- A. The figure shows Freundlich adsorption isotherm
- B. The figure shows Langmuir adsorption isotherm
- C. The adsorption varies with pressure
- D. The factor  $1/n$  can have values between 0 and 1

**Answer: B**



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**16.** Choose the correct reagents used in the conversion



- A.  $\overset{p}{Br_2} \quad \overset{q}{alc. KOH} \quad \overset{r}{NaOH} \quad \overset{s}{Al_2O_3}$
- B.  $\overset{p}{HBr} \quad \overset{q}{alc. KOH} \quad \overset{r}{CaC_2} \quad \overset{s}{LMnO_4}$

C.  $\overset{p}{HBr} \overset{q}{alc. KOH} \overset{r}{NaNH_2} \overset{s}{red\ hot\ iron\ tube}$

D.  $\overset{p}{Br_2} \overset{q}{alc. KOH} \overset{r}{NaNH_2} \overset{s}{red\ hot\ iron\ tube}$

Answer: D



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17. N-butylamine (I), diethylamine (II) and N,N-dimethyl ethylamine(III) have the same molar mass. The increasing order of their boiling point is:

A.  $III < II < I$

B.  $I < II < III$

C.  $II < III < I$

D.  $II < I < III$

Answer: A



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18. Intermolecular forces between n-hexane and n-heptane are nearly same as between hexane and heptane individually. When these two are mixed, which of the following is not true about the solution formed ?

A. It obeys Raoult's law, i.e.  $p_A = x_A p_A^\circ$  and  $p_B = x_B p_B^\circ$

B.  $\Delta H_{\text{mixing}}$  is zero

C.  $\Delta V_{\text{mixing}}$  is zero

D. Its forms minimum boiling azeotrope

**Answer: D**



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19. Arrange the following polymers in an increasing order of intermolecular forces , fibre, plastic , elastomer .

A. Elastomer < Fibre < Plastic

B. Elastomer < Plastic < Fibre

C. Plastic < Elastomer < Fibre

D. Fibre < Elastomer < Plastic

**Answer: B**



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**20. Which of the following statements is not correct?**

A. Antiseptics can be safely applied to the living tissues

B. Antiseptics can be incorporated into deodorants, face powders  
and soaps

C. Disinfectants can also be applied to the skin safely

D. A very dilute solution of a few disinfectants can be used as  
antiseptics



**Answer: C**



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**21.** For the reaction  $a + b \rightleftharpoons c + d$ , initially concentrations of a and b are equal and at equilibrium the concentration of will be twice of that of a. What will be equilibrium constant for the reaction ?



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**22.** The spin only magnetic moment of transition metal ion found to be 5.92 BM. The number of unpaired electrons present in the species is :



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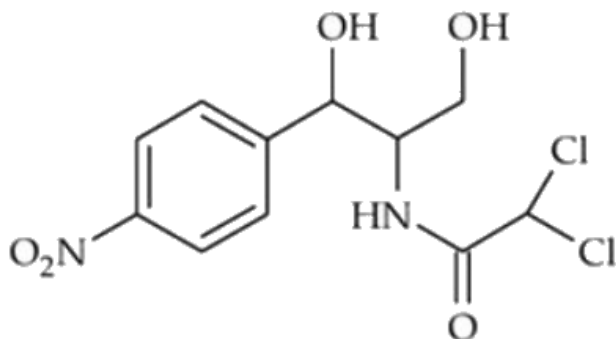
**23.** How many of these compounds are more acidic than phenol here.

Formic acid, Benzoic acid, Picric acid, Ethanol, Water, Ortho -

nitrophenol, Ortho - cresol, para - nitrophenol, para - cresol

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24. The structure of chloramphenicol given below



If number of chiral carbon atoms in this structure is  $X$  and number of  $sp^2$  hybridised carbon atoms is  $Y$ . The sum of  $X + Y$  is equal to?

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25. Calculate the percentage composition of a solution obtained by mixing 200 g of a 20 % and 300 g of a 30 % solution by weight.

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